

REMARKS

This is intended as a full and complete response to the Office Action dated December 10, 2010, having a shortened statutory period for response extended two months and set to expire on May 10, 2010. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-45 are pending in the application and remain pending following entry of this amendment.

Claim Rejections - 35 U.S.C. § 103

Claims 1-4, 8-12, 24-25, 37-31 and 33-45 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Schmutz* (US2001/0031621) in view of *Wilson et al.* (U.S. Publication 2004/0176097, hereinafter, “*Wilson*”). It is noted that the Office Action actually states “Schmutz... US 6421334.” However, this is assumed to be in error as the Notice of References lists *Schmutz* as US2001/0031621 and the description of the citations in the Office Action match that of US2001/0031621.

In any case, Applicants respectfully traverse these rejections.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2141. Establishing a *prima facie* case of obviousness begins with first resolving the factual inquiries of *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The factual inquiries are as follows:

- (A) determining the scope and content of the prior art;
- (B) ascertaining the differences between the claimed invention and the prior art;
- (C) resolving the level of ordinary skill in the art; and
- (D) considering any objective indicia of nonobviousness.

Once the *Graham* factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art.

Applicants respectfully submit that the Examiner has not properly characterized the teachings of the references and, as a result, has failed to ascertain differences between the claimed invention and the prior art. Accordingly, a *prima facie* case of obviousness has not been established.

As an example, Applicants respectfully submit that, despite the Examiner's contention, *Schmutz* fails to teach "partitioning, at an access point, a control channel used for transmitting control information into a plurality of subchannels" and "selecting, *for each of at least two user terminals*, one of the subchannels to be used for transmitting control information from the access point to the respective user terminal, based on one or more selection criteria" as recited in claim 1.

The Examiner refers to paragraphs [0037] and [0038] as teaching these features. These paragraphs are listed herein for convenience:

[0037] As noted earlier, in single TDMA RF carrier implementations, one slot will generally be a dedicated digital control channel. As shown in detail 23 of time slot 0, sub-channels in the uplink control time slot generally include a stand-alone dedicated control sub-channel (SDCCH) 23-1 and a random access sub-channel (RACH) 23-2. The SDCCH sub-channel 23-1 is used to transport information between the BTS 15 and specific mobile users 18 to complete call set up or for transmission of messages from a mobile user 18 in idle mode. The RACH sub-channel 23-2 is used by the mobile user to request access to the network during initial call set up.

[0038] FIG. 3b shows a typical GSM-type eight time slot TDMA frame 24 used in base station 15 to translator repeater 12 communications. Generally, the information format in the traffic time slots 1-7 remains the same compared to uplink traffic channels shown in FIG. 3a. However, more control sub-channels are included in the control time slot 0 as shown in detail 26 in FIG. 3b, compared to the corresponding uplink control channel shown in detail 23 of FIG. 3a. Specifically, as shown in FIG. 3b, downlink control time slot 0 is comprised of frequency correction sub-channel (FCCH) 26-1, synchronization sub-channel (SCH) 26-2, broadcast control sub-channel (BCCH) 26-3, paging and access grant sub-channel (PAGCH) 26-4 and SDCCH sub-channel 26-5. The FCCH sub-channel 26-1 transmits frequency correction information (through translating repeater 12) for a mobile user 18

to correct its time base, while the SCH 26-2 sub-channel transmits 20 (through translating repeater 12) synchronization information for the mobile to synchronize to the framing structure of the network. The BCCH 26-3 sub-channel transmits (through translating repeater 12) information to idle mobile users 18 such as local area identification and neighbor cell information. Finally, the PAGCH 26-4 sub-channel is used (through translating repeater 12) to page a mobile user 18 and grant access to a mobile user 18 during call set up.

While these paragraphs certainly teach partitioning a time slot into subchannels, it does not teach partitioning a control channel into multiple subchannels and selecting different ones of the subchannels for transmitting control information to respective different user terminals, as recited in claim 1. In contrast, the time slot is partitioned into different *types* of sub-channels (e.g., FCCH 26-1, SCH 26-2, BCCH 26-3, PAGCH 26-4, and SDCCH), but there is no teaching different subchannels are selected for transmitting control information to respective user terminals.

Claim 1, on the other hand, recites “selecting, *for each of at least two user terminals*, one of the subchannels to be used for transmitting control information from the access point *to the respective user terminal*.” As illustrated in FIG. 7, in one example embodiment a forward control channel (FCCH) may be partitioned into multiple subchannels (FCCH_0, FCCH_1, FCCH_2, and FCCH_3). As described in paragraphs [0114] of the present application, the recited partitioning may allow for efficient utilization of resources, as different subchannels (operated at different rates) may be selected for users based on operating conditions (e.g., SNR):

[0114] As shown in Table 16, each FCCH subchannel has a distinct operating point (e.g., SN.sub.R and other processing parameters) associated with it. A user terminal (UT) that is assigned a specific FCCH subchannel (e.g., FCCH_n at a particular rate) can correctly decode all lower rate subchannels, but not those operating at the higher rates. For example, if a particular user terminal is assigned subchannel FCCH_2, that user terminal can decode FCCH_0 and FCCH_1 subchannels because FCCH_0 and FCCH_1 operate at the lower rates. However, that user terminal cannot decode FCCH_3 because FCCH_3 operates at a higher rate. In one embodiment, the access point (AP) decides which FCCH subchannel to send control data to a UT based on various factors or selection criteria. These various factors or selection may include link quality information or operating conditions of the user

terminals (e.g., C/I, Doppler, etc.), quality of service (QoS) requirements associated with the user terminals, and control subchannel preference indicated by the user terminals, etc. As described in more details below, the user terminals then attempt to decode each of the FCCH subchannels to determine if they have been allocated resources (e.g., FCH/RCH channel resources).

Thus, resources may be efficiently utilized as the “worst-case” user terminal does not cause subchannels for other user terminals to be operated at its lower rate. The subchannels of *Schmutz* are simply used for different purposes and different ones are not selected for different user terminals, as recited in claim 1.

The Examiner also seems to have failed to appreciate that the claims also recite that different subchannels selected for different user terminals and, further, that the subchannel selection is “*based on one or more selection criteria.*” As described above, the selection criteria may, for example, be based on signal to noise ratio. The Examiner refers to paragraph [0015] of *Schmutz* as teaching this feature:

[0015] The invention concerns a method and apparatus for automatically configuring a wireless repeater in a cellular communication system. The method comprises the steps of selecting a repeater configuration associated with at least one predetermined cell, identifying a specific repeater installed in the predetermined cell, and providing the repeater configuration to the specific repeater using a wireless transmission from a remote control facility. The repeater configuration can include at least one selected from the group consisting of a neighbor list, at least one groundlink channel, at least one backhaul channel, handover thresholds, alarm thresholds, alarm masks and at least one backhaul power level.

While this paragraph makes reference to various “thresholds”, there is clearly no teaching of “selection criteria” for “selecting, for each of at least two user terminals, one of the subchannels to be used for transmitting control information from the access point to the respective user terminal” as recited in claim 1.

The Examiner acknowledges that *Schmutz* fails to teach operating partitioned subchannels at different data rates, but relies on *Wilson* as disclosing this feature. However, as noted above the Examiner has failed to properly construe the teachings of *Schmutz*.

Accordingly, Applicants submit that, even if combined, *Schmutz* and *Wilson* fail to teach each and every element recited in claim 1. Claims 9, 20, 25, 30, 34, 37, 40 and 43 recite similar elements as claim 1 that are not taught in *Schmutz* and *Wilson*.

Accordingly, Applicants submit these claims, as well as their dependents are allowable and respectfully request withdrawal of this rejection.

Claims 5-7, 22-23, 26 and 32 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Schmutz* in view of *Wilson* and further in view of *Kadous* (U.S. Publication 2003/0165189).

These claims each depend from claims 1, 20, 25 and 30 which Applicants submit are allowable for at least reasons discussed above. Further, Applicants submit that *Kadous* fails to overcome the deficiencies in the teachings of *Schmutz* in view of *Wilson* discussed above.

Therefore, the claims are believed to be allowable, and allowance of the claims is respectfully requested.

CONCLUSION

Therefore, for at least the reasons presented above with respect to all of the pending claims subsequent to entry of this response, Applicants assert that all claims are patentably distinct from all of the art of record. All objections and rejections having been addressed, it is respectfully submitted that this application is in condition for allowance and a Notice to that effect is earnestly solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Charge Statement: For this application, the Commissioner is hereby authorized to charge any required fees or credit any overpayment to Deposit Account 17-0026.

Respectfully submitted,
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